

Integrated infrared intelligent ball camera



(HIGH SPEED DOME)

Operation Instruction

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Part one: matters need attention

Careful transportation

Transportation and storage process to prevent stress, violent vibration and soak for products such damage. This product must adopt fission packaging transportation, if by using the whole after assembling transportation and caused any damage to the product, do not belong to the warranty scope.

When a fault happens

If this anomaly appeared smoke, smell or function is not normal, immediately shut off the power and disconnect the power cord, stop using the machine, then contact with our company.

Do not disassemble or modified

Don't open shell, otherwise it may cause danger or cause damage. If should the internal set or maintenance, please contact with the company.

Don't put other items in the unit

Confirmation shall not metal or combustible things in the camera. If the machine have foreign things, may cause fire, short circuit or damage. If the water or liquid inflow it, please immediately shut off the power and disconnect the power supply, then discuss with our company. Carefully protect camera, avoid rain, seawater erosion

The machine carefully

In order to avoid damage, do not make cameras drop or strongly impact or vibration

Set in place away from electric and magnetic fields

If set in television, radio transmitter, electromagnetic device, motors, transformers, near the speaker, electromagnetic interference images will be.

Avoid moisture and dust

In order to avoid to damage the camera, never Setting in water, high temperature ,fume or places there is a lot of dust

Avoid high temperature

Don't set in heating furnace, or other such as heat source, the spotlight near, Don't set in place of sunshine illuminate vulnerable, otherwise it will cause the deformation, fades, or other damages. When setting in the ceiling, kitchen or near the boiler, temperature may rise high.

Cleaning

With a soft cloth to wipe the dirt on the shell . To remove dirt, usable with soft cloth on detergent solution and wipe dry, next reoccupy dry soft cloth wipe dry. Do not use gasoline, paint thinner or other chemicals to clean shell, otherwise it may cause deformation and paint peeling. In the use of chemical dishcloth, be sure to read the instructions. Don't let the plastic and rubber contact with machine for long time, otherwise it will cause damage or paint peeling.

Don't aimed at light objects

Please use the product as working environment requirements

Environmental requirements:

The use of machines, outdoor environmental requirements:

Environmental temperature: - 30 ~ + 50 °c

Wet degrees: < 90%

air pressure: 86 ~ 106Kpa

The ac power: 24V / 3000mA. 50/60Hz

Do not tear down the camera

Do not remove the ball screw or protective cover, it should be performed by a qualified maintenance service personnel.

Part two:Performance characteristics

Integrated infrared intelligent ball camera is using the latest achievements in science and technology development, built-in zoom lens of high-performance digital signal processing (DSP) camera. It combines the universal speed and digital yuntai decoder in the integration of high-tech products. Can be arbitrary positioning and rapid continuous tracing scanning, realize the real meaning of not blind surveillance, Can automatically adapt to the environment and the distance change , It adopts full digital control, exquisite simple design, minimize the connection between the system components, improve the reliability of system and easy installation and maintenance. Using precise stepper motor drive, smooth operation, sensitive, accurate positioning. High-speed ball camera has memory function, can be restored after the start of the work of the state.

High-speed intelligent ball camera can through menu set various parameters, such as system information display, display Settings, camera parameter Settings, preset options, alarm Settings, auxiliary switch Settings, etc.

High-speed intelligent ball camera's various characteristics make it suit of all professions' large area and activities target surveillance, such as intelligent buildings, Banks, urban roads, power security department, airport, station monitor, etc. With other users in the system, the using methods have their own unique requirements, here do not specify, please contact with the manufacturer or dealer.

1. ball machine parameters

A) Electrical index

[The video output amplitude]: 1.0 ± 0.2 VP, 75 Ω composite video signal

[The signal-to-noise ratio (S/N)]: 50dB

[The manual speed] ($0.5^\circ \sim 150^\circ / \text{SEC}$) /vertical ($0.5^\circ \sim 120^\circ / \text{SEC}$)

[The preset speed]: $180^\circ / \text{SEC}$

[The rotating]: horizontal 360° continuous rotation, vertical $0 \sim 90^\circ$ with automatic flip

[The focus speed automatic control]: control the speed according to the focal length.

[The preset point]: 255

[The automatic flip]: when vertically down 90° can automatic flip 180°

[Automatic scanning]: 6 article automatic scanning, 1 auto scan route and speed can be set

[The synchronous way]: internal and external synchronous optional

[The communication baud rate]: 24/4800/9600/19200 BPS

[The range of addresses]: 1-255

B) Physical indexes

[The video output interface]: BNC

[The remote control]: RS485 twisted-pair cable

[The environment temperature]: $-30^\circ\text{C} \sim +50^\circ\text{C}$

[The environment humidity]: $0 \sim 95\%$ (without condensation)

[The protective grade]: all-weather shield, 3000V lightning protection, surge

protection

[The power consumption]: ball machine 15W, infrared lamp open 40 w

[The power]: AC 24V 3000mA/50HZ

[Size]: 308 x 220 (high x diameter)

[the weight] : 4 kg (excluding stents and power),

[Under the hood] : the transparent or translucent

2 camera parameters

This intelligent machines can allocate with multiple integration camera, HITACHI, SONY, LG, Lin (CNB), Sanyo, etc. If you want specific parameters, please refer to specific camera. (if you want to add other agreements, please contact with manufacturer or distributor)

3 ball machine performance characteristics

This intelligent machines adopt new design, compact structure, metal structure, built-in thermostatic machine radiator quickly, Easy installation, make the surveillance more concealment, flexible rotation, small noise, large shooting range, multiple automatic function, providing customers with perfect quality.

A) built-in decoder

- 1) all digital design, all data are stored in the machine ,when power cuts, data would not be lost.
- 2) integrated design, high reliability.
- 3) 255 preset position optional storage.
- 4) 1-80 preset position support automatic cruising function, 1 cruising path can stored 16 preset position, each preset position retention time optional (maximum 80 seconds).
- 5) Adopt RS485 bus.
- 6) Using extension function to achieve any keyboard can operate high-speed ball

B) built-in yuntai

- 1) aluminum alloy structure, thermal properties.
- 2) precise stepper motor drive, smooth operation, sensitive, accurate positioning.
- 3) integrated design, compact structure, quick, convenient connection.
- 4) ingenious mechanical device drivers, support horizontal 360 ° continuous rotation, vertical 0-90 °, 180 ° automatically flip.
- 5) the horizontal slow rotation of 0.5 °/s, image not wobble.
- 6) can guard Settings, the ball can be set automatic preset when it is free.
- 7) automatically restore the state after electricity
- 8) fan control temperature.

C) built-in camera

- 1) high sensitivity, high resolution digital processing of integration.
- 2) automatic gathered, automatic aperture, automatic control, automatic white balancing brightness.
- 3) automatic color /black&white images, automatic backlighting compensation, automatic slow shutter.

4) build-in fan control temperature.

) infrared lamp

1) infrared lamp, a kind of eight 1W headlight cup, 16 small lights, distance 80-100 meters from the camera, according to the different function of lens, different DengZu employed (8509A).

2) infrared lamp, a four 8 degrees array type light cup, four 30 degrees headlight cup, distance 100-120 meters, according to the different function of lens, different DengZu employed (8509B).

E) OSD onscreen menu

1) English menu options.

2) visualization OSD onscreen menu, through the keyboard and screen menu display change machines' information and parameters, easy operation.

3) OSD onscreen menu operating simply need rocker or setting preset position.

4) information on screen display, the operation is more intuitive.

5) all the screen message can be set for down or open.

Part three: installation instructions

1. Attention

Do not install the product in the place of storage or using inflammable and explosive dangerous goods. In the process of installation we must strictly abide electrical safety procedures made by state and user areas. In the process of installation and maintenance, you may confirm that the power has been disconnected.

This product uses 24VAC voltage, forbid directly connect the things which above this data to the product.

Confirm the location have enough space for the machine and installation structure. Confirm the ceiling and wall's bearing capacity can support the total weight . Four times the safety coefficient is requested .

This product can not be used exceed environmental requirements

The installation process need special care, once miss, fall on the ground and losses will be irreparable.

The ball machine after packing, please keep the original packaging materials, so when problems occur, using the packaging materials to package the machine, then send to the agent or return to the manufacturer. The unoriginal packaging materials may cause accidental damage in transit, causing additional fees.

2. Environmental requirements

The use of machines, outdoor environmental requirements:

[The environment temperature] : - 10 ~ + 50 °c

[The wet degrees] : < 90%

[The air pressure] : 86 ~ 106Kpa

[The ac power] : 24V / 3A 50 HZ

3. Installation guide.

Scaffolding installation ball can be used indoor and outdoor.

A) Installation conditions

Wall hung ball can be used in indoor and outdoor environment of rigid wall structure

The thickness of the wall should be enough to install expansion bolt

2) Wall can bear the weight at least four times of the machines

B) Installation hanging bracket:

1) With hanging bracket underside' installing hole as templates, paint and drill hole on the wall.

2) When the machine removed from the package, unscrew the fixed transparent cover bolts and transparent cover, and keep a transparent bubble, don't scratch. Remove the cushions of fixed movements. Check whether have damage.

Note:

If, after open the machine, you need continue to package and transportate, or when the machine is in use process, malfunction, should return to factory to maintenance, please press the original packaging.

3) Electrical cables through the wall bracket, wall bracket to the side of the M 6 Loosen the screws (not totally screwed off) and back, so the cover can be properly inserted into connection seat, then reached into his seat on the cover connection to the wall bracket, and tighten the M6 screws, and then shake the ball machine, to ensure the ball machine fixed firmly. And then fixed it to the wall.

Note:

If the ball machine is used for the outdoor environment, self-sealing water. on the cover of the wall bracket , the wall surface, outlet hole, the connector we should use the silicone to seal the water fight.

4) Connecting cable is required to confirm that the circuit has been disconnected. when connecting cable, please connect the power, video, communications cable and the appropriate cables respectively.

Part four: Function and Operation Guide

This section describes the main function and the universal principles of infrared intelligent ball, not related to specific methods of operation, because different operating system platform, specific methods vary, generally the system manufacturer's operating manual prevail, there will be some cases, you have special requirements and operating methods, please contact the dealer to obtain the necessary information.

1 .Set video coding

On the ball there is a 10 SW1 code switch, 1-8 used to set machine addresses, 9-10 for setting communication baud rate.

Ball control protocol can automatically identify FACTORY, PELCO - P, PELCO - D.

Any command control must base on address, video camera only consistent with its response to address the same as the control commands.

2. Automatically execute actions function

Users can use the keyboard control joystick to control the machine to turn left, turn right, up and down, can be used to track a moving target, to transfer by adjusting the focal length to change the size of the Angle and the target image. In default of automatic focus, automatic aperture, along with the condition of rotation, camera lens will make rapid changes according to the scenery, and immediately got clear images.

A. The focal length/speed automatic matching technology

Manual adjustment, focus on the far, high-speed ball machines make slight touches rocker response rapidly moving images possible, thereby causing loss, based on the humanized design picture, intelligent machines according to the focal distance automatic adjustment yuntai horizontal and vertical speed, manual operation target tracking more easy. In the screen menu, make "double yuntai parameters matching" set "open", to realize the function.

B) Automatically flip

Operators take camera lens to bottom (vertical) if you still pinned rocker , lens immediately automatically turn up 1800,then flip up 900,can directly see the back scenery ,so as to realize the whole surveillance of longitudinal 1800

C) guarding function

Guarding function is operating control personnel in a period of time without operation (note: the ball in motion, machine will enable), ball-type camera automatically come back to the user' predefined position. Through the camera Settings menu to set the spherical camera' guarding place, for the time (1-255 seconds) and enabled or disabled. Through the menu item's "preset position" and "time", if the ball does not execute any movement, after a period of time, user can set specified automatic call preset.

Operating hints:

If the preset "position" and "time "set zero, the guarding position will not enable.

3. Camera control

A) Magnification control

Users can through the control keyboard "ZOOM - / ZOOM +" to adjust the picture to get a panoramic view of the picture, or close view, ball machine support digital ZOOM and optical ZOOM and digital ZOOM can be set.

B) Focus control

The default for automatic focus. Lens change, cameras will take view images as the center, keep clear images, The user can also through the operating keyboard, " FOCUS -/ FOCUS +", to achieve the desired effect of image. When operating keyboard rocker, camera autofocus recovery.

Cameras in the following circumstances will not be taken to that target on:

- 1 goal is not in the center of the picture,
- 2 while observing the target near and far, cannot guarantee clear.
- 3 goals are light objects, such as Neon light, spot light objects, etc.
- 4 goals move too quickly,
- 5 large drab, such as walls,
- 6 goals too dark or was originally fuzzy,
7. Target image is too small.

C) The aperture control

The default for automatic aperture. Users can control through the keyboard "IRIS - / IRIS +" manual adjustment the size of the aperture to get the picture for brightness. Users also can be restored by centrifugally operation control aperture, when manual control the aperture, the aperture will stop in the current manual control situation. When operating keyboard rocker, the ball machine recover automatic machines aperture.

Operating hints:

Users can use "91 preset position" to enter or exit the menu, operation keyboard "FOCUS- /FOCUS+" to enter or exit menu items, through the controlling keyboard " ZOOM - / ZOOM +" change the Settings.

D) Automatic backlighting compensation

The realization of automatic partition compensation, in strong light backlighting background, automatic compensate the black place. and adjust the bright place. Avoid high brightness background caused a whole picture brightness.

E) Automatic white balance

According to the change of environmental light, automatic regulation, reproduce true colors.

4 monitoring function

A) set and call preset

Preset point function is that the ball store the present condition ball's slope Angle, yuntai and camera lens etc parameter into memory storage , Operator

can be quickly through the keyboard to call the preset points out equipment ,this intelligent ball support 255 preset point.

B) Automatic cruise

Automatic cruise is this ball machines built-in functions, that can be preprogramed, arranged the preset point in a queue in the order of programming, through insert preset point in the cruising can realize automatic cruise. Cruise sequence and preset points time are programmable, a cruise path can storage 16 points and preset point time.

C) Automatic scanning

Operator can quickly through the controlling keyboard and menu pre-set left and right limit .

D) Privacy protection area (about the function of the camera)

Users can set covered the places that need privacy protection area with black shadow.

E) power off protection

When the camera appears correct or incorrect power off, cameras will automatically protect the condition before power off. After restart, it will automatically restore the working conditions before power off

Part five: system menu

1. basic instructions

This intelligent machine support all English menu display, can set all kinds of system parameters convenient and fast .

A) the basic operation method:

1) call the preset position into the OSD English menu.

2) when edit menu, the joystick's up and down choose submenu and numerical editing, joystick's left and right enter or exit submenu.

3) when editing, the value will be flashing. When numerical editing, press the joystick all the time , in about 2 seconds later ,the numerical will be plus or minus, numerical will flashing again.

4) various Settings menu data will not be lost after power off.

5) different keyboard have different operation method to call the main menu or the preset point . you should use the keyboard with current operating methods.

Note: in the menu, some functions will pause menu operator, (as: control limit scanning setting) after setting ,you can use number95 preset position to restore the menu.

B) the ball on the electricity and self-inspection information display

After the ball on the execution procedures, the machine first automatic identification integrated camera (automatic identification is only HITACHI, SONY, LG, CNB four seek), then rotate to factory default Settings level origin, downward motive to vertical origin, lens from far to close , and from near to far , after right self-inspection, the screen will appear related information

shown below
T h i s i n f o r m a t i o n s h o w s a m
T h i s r d e r r e c e i v e b a l l s w i l l b e
c l o s e d u n t

T h i s i n f o r m a t i o n s h o w s a m i n u t e s o r
u n m a c h i n e ' s a d d r e s s 001

Baud rate 1400bps

Communication agreement pelco-d

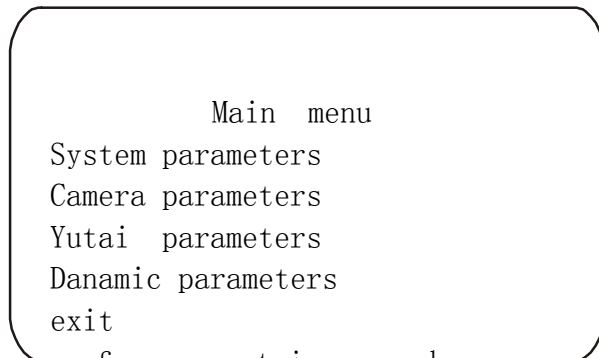
Software version v1.05

~~o r d e r r e c e i v e b a l l s w i e~~

when this information shows a minute or until the correct order received ,the ball will close.

C) the main menu

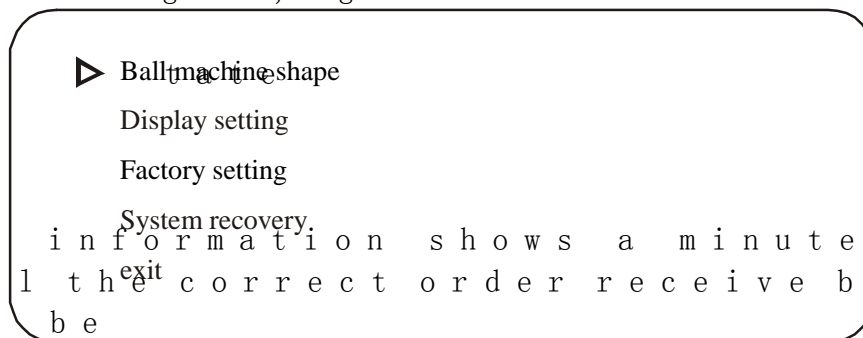
System by calling the 95 points, call out the main menu. All menu Settings must call the main menu first. The main menu is as shown in figure



is information shows a minutes or until the correct picture one

2 system parameter Settings

Select "system parameters" from the main menu, then enter system parameters Settings menu, figure 2



This information shows a minutes or until the correct order receive balls will be

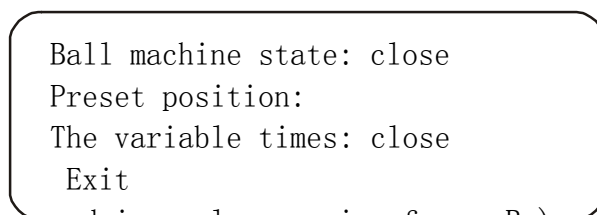
Picture 2

A) 1 Ball machine state

Function reserved

B) the ball machine display information configuration

In figure 2 menu, make the cursor move up and down to figure "display Settings", then moves rocker right to enter into screen information configuration menu ,as fig.3 shows



ne display infor B) the picture 3

Description:

This menu is used to set message on the screen. When you choose "open", it will show the message. When you choose "close", it will not display. [The ball machine state]: whether to display the ball machine name [the preset information]: whether to display Settings or call the preset [The variable times]: whether to display lens magnification information Setting methods are as follows:

To move the cursor to choose an option, then moves right into the input zone. At this time, the character of the input zoon move, move the joystick up and down to modify the input value. After you choose well, move left or right to exit the setting .

C) factory Settings

In figure 2 menu, make the cursor move up and down to "set", then move to the right, which means to make the system information manufacturers default Settings.

Note:

This operation will lost the user information, so you should be carefully.

D) system reset

In figure 2 menu, make the cursor move up and down to "system", and then move the joystick right, the system will reset to execute self-inspection. After all is set, move the rocker up and down to "exit", again move to the right, to exit the main menu.

3 camera parameters Settings

In the main menu figure 1, make the cursor move up and down to "camera parameters" , then move right into the camera Settings menu (note: some function of some models invalid) as shown in figure 4

I	High-speed variable times: open f H H i g h - s p e e d
v a r i a b	Digital variable times: open
	Automatic focus: open
	Reset
	Exit

T h e h i g h s picture 4e

[high speed variable times] : to set the lens speed adjustable.

[Digital variable times] : used to set the digital variable focus switch.

[Automatic focal] : to set the variable focus automatically or manually.

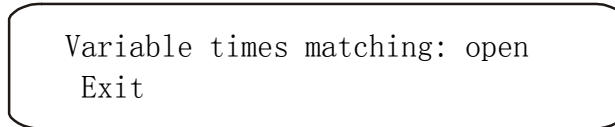
[Reset] : the camera parameters reset

Setting methods are as follows:

To move the cursor to choose an option, then move right into the input zone. Now the character of input zoom flashing, move the joystick up and down to modify the input value. When you choose well, move to the left or right and exit the setting. After all is set, move the rocker to make the cursor figure "exit", again move to the right, then exit .

4.ball machine yuntai parameter Settings.

In the main menu figure 1, make the joystick move up and down ,make the cursor figure to "yuntai parameter "then moves rocker right into yuntai parameters Settings menu ,as shown in figure 5.



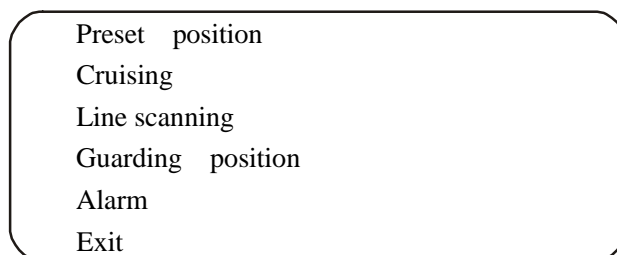
Picture 5

[Variable times matching] :used for setting proportional control, that is lens focus and speed automatic matching. After the completion of the Settings, move the rocker to make the cursor figure to "exit", then moves rocker right to exit setup. (recommend that users choice" open ").

Manual adjustment, focus on the far, high-speed ball machines make slight touches rocker response rapidly moving images possible, thereby causing loss, based on the humanized design picture, intelligent machines according to the focal distance automatic adjustment yuntai horizontal and vertical speed, manual operation target tracking more easy. In the screen menu, make "double yuntai parameters matching" set "open", to realize the function.

5 Ball automatic operation Settings.

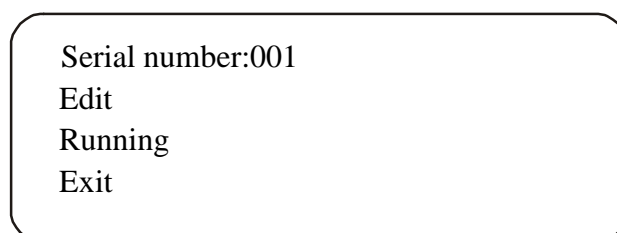
In the main menu figure 1, make the joystick move up and down, make the cursor figure to "automatic parameter", then moves right into the automatic operation settings , as shown in figure 6



Picture 6

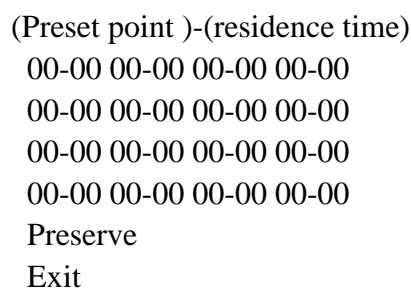
- A) preset position setting
function reserved
- B) set up automatic cruise

In figure 6, make the joystick up and down to make the cursor figure to "cruise", then moves right into the automatic cruise queue menu, as shown in figure 7



Setup procedures are as follows:

- 1) in figure 7, move the joystick up and down to make the cursor figure to "serial number ", then move joystick to the right, enter setup cruise queue Numbers input zone. Move joystick left or right to modify numbers, after the completion, exit the setting. (note: input values greater than 6 or less than 1, can not perform the following operations)
 - (a) to move the joystick to make cursor figure to "edit", again move the joystick to the right, enter setup cruise queue and each preset remaining time menu ,as shown in figure 8. List "00-00"'s first item stands preset point Numbers, second item says the preset remaining time. To the right, then rocker enter edit state, move up and down, the joystick modify numbers, after the completion, move joystick left or right to exit setting. (note: when points or preset point is" 00 ", the system will automatically thought it is the end of cruise queue , it will no longer execute the following cruise). After all, set up the cursor to "deposit", then moves right to suggest save Settings. Such as mobile rocker to make the cursor to point directly to the "exit ",move the joystick right again says give up exit.



(Preset point)-(residence time)

00-00 00-00 00-00 00-00

00-00 00-00 00-00 00-00

00-00 00-00 00-00 00-00

00-00 00-00 00-00 00-00

Preserve

Exit

Picture 8

- (b) in accordance with the preceding two steps to set other cruise queue.
- (c) after setting, move the rocker to figure "exit", again to the right, exit setting .
- (d) in figure 7 menu, to move the cursor to point " run ", and then moves rocker right, running the present cruise queue.

Note:

When this machine is produced ,we made the following Settings:

Article 1: 01-16preset point, residence time is 4 seconds.

Article 2:17-32 preset point, residence time is 4 seconds.

Article 3:33-48 preset point, residence time is 4 seconds.

Article 4: 49-56 preset point, residence time is 4 seconds.

Article 5: 57-80 preset point, residence time is 4 seconds.

Use expansion function can convenient operate cruise path: 101-106 preset position will respectively use 1-6 cruise path.

6 .set limit scanning

In figure 7, move the joystick up and down to make cursor point to "line scanning", and then move the joystick to the right to limit scanning ,as shown in figure 9:

Speed : 255
 Setup left limit position
 Confirm
 Setup right limit position
 Confirm
 Running
 Exit

Setup procedures are as follows:

- 1) move the rocker up and down to make the cursor point "speed", then moves right to set the scanning speed. After setting, move the rocker to right or left to exit setup.
- 2) move the rocker up and down to make the cursor point "setup left limit position", move to right to set initial-and-end position (at this time, moving rocker will not move the cursor). After setting, again through the keyboard, 95 "Settings" preset return to menu.
- 3) move the rocker to make "confirmation", which determine the level to the right position scan.
- 4) to move the cursor rocker Settings right ", and then to limit the right move into the level of a joystick destination (now move the cursor moves rocker menu). After setting, again through the keyboard "95 Settings preset" return to menu.
- 5) move the rocker up and down to make the cursor point "confirmation" ,then move to right to confirm the horizontal scanning destination location.
- 6) move the rocker up and down to make the cursor point "operation" ,then move right to operate horizontal the scanning rocker.
- 7)After setting, move the rocker up and down to make the cursor point "exit", then move to the right, exit setting.

Note:

Use expansion function operate automatically scan, 125 preset point auto scan, value speed is set by machine default, 360 degrees.

7. Guard Settings

This allows the ball machine set free condition for a period of time (1-255 seconds), to execute a specified movement. The default setting is 0, suggest not automatically execute actions. In figure 6, move the rocker up and down to make the cursor point to "guard", then moves right to enter the guard menu.

Setup procedures are as follows:

- 1) move the rocker up and down to make the cursor point "preset position", and then move joystick to right to guard setting. Guard (note: guard position is a preset point of 80, therefore you must first set preset position of guard position, then guard position will work), when the guard preset point is zero or more than 80, guard position cannot enabled.
- 1) move the cursor to "waiting time", and then move joystick right into guard waiting time Settings. When time set 0, guarding function will not start, the waiting time can set for 1-255 seconds.

2) after completion, move the rocker up and down to make the cursor point "exit", move the joystick right again, exit setup.

Note: when the machine is moving, guarding function will not enabled.

Part six: function expansion

This text mainly describes integrated intelligent machines' function expansion's universal principles, not involve specific operation method, different system platforms' specific operation method are different, generally take manufacturers' operation manuals as standard, certain circumstances will have specific requirements and operation method, please contact with dealers to obtain the necessary information.

1 .set line scanning

This machine can be set in two fixed position, according to the set speed scanning. 126 setting preset start setting lines, setting NO. XXX for scanning speed (speed for 1-255 no limit speed), then move joystick , move pictures to need scanning position, set 127 preset position determine scanning starting point, then move to the scanning destination location, set 128 preset position to determine the destination scanning

Ex.1: speed about 100 scanning Settings.

Setting method:

- 1) set 126 preset position .
- 2) set 100 preset position, set for speed.
- 3) move rocker, adjust image picture
- 4) Set NO.127 preset position for starting point.
- 5) move joystick, adjust the picture to scanning destination.
- 6) Set NO.128 preset position ,for end.

Example 2: speed about 200 scanning.

Setting method:

- 1) set NO.126 preset position
- 2) setno. 200 preset position,for speed.
- 3) move rocker, adjust the picture (this picture for scan images).
- 4) Set NO.127 preset position, for starting point.
- 5) move rocker.
- 6) Set128 preset position ,for end.

2. call patrols

Call 101-106 preset position, corresponding call 1-6 patrols.

Example: operate 1 patrols.

Methods: call NO.101 preset position.

3 .paths

Call 128 preset position.

4 .run automatically scan

- 1) call no.123 preset

Automatic scanning to the left ,with the speed ball machine inside fixed

- 2) Call NO. 124 preset

Automatic scanning to the right , with the speed ball machines inner fixed.

- 3) call NO. 125 preset or by automatic operation.

Automatic scanning for 360 degrees scanning ,with speed ball inside fixed.

5. Adjust camera menu

Call 91 presets.

Part seven: the appendix

Failure	Possible reasons	Methods to solve them
When Electricity, without movement, no image	1.24 V ac power of uncorrect connection. 2 transformer faults.	1. check whether 24VAC power supply socket, ensure good body contact. 2 check whether 24VAC is normal, mains transformer is functioning properly.
When there is electricity. There is image and self-inspection the controller can't control	1 ball machine code switch Settings incorrect . 2 RS485 line connect opposite or open. 3 RS485 bus fault.	1. According to pull the code switch Settings, reset code switch out 2 check the RS485 wiring, ensure connect right and have good contacts. 3. appendix: RS485 bus sense.
Fans can't turn	1 .fan not well attach 2. -10 degree temperature environment	1. connect it , if it still can not work, please contact the dealer. 2 work in appropriate temperatures.
Blurred images	1. Focus on manual state 2 the ball covered with dirty	1 machines change focus state to automatical state, or call the preset position,adjust focus to the right size. 2. clean the transparent bubble.

2 clean transparent cover

In order to guarantee the ball machine imaging clearly, the hood should be periodically cleaned, when clean, you should pay attention to the following:

1) be careful when cleaning, only with the hand stay ring cover , avoid direct contact with the fingers

2) please use soft dry cloth to wipe the surface or other alternatives.

3)if it is very dirty, use clean water to wash it, then use neutral detergent with a soft cloth to wipe in transparent cover, then clean with clear water, wipe dry with soft cloth or with water.

3 RS485 bus sense

A) RS485 bus basic characteristics

According to the industrial standard, RS485 bus interface RS485 bus for industrial

properties of resistance Ω 120 Yin half-duplex communication bus, its largest load capacity for 32 payload (including major control equipment and charge equipment),

B) RS485 bus transmission distance

When using 0.56 mm (24AWG) twisted-pair cable, according to different baud rate, the largest transmission distance theoretical as follow:

Baud rate	maximum distance		Baud rate	maximum distance
1200BPS	1800m		2400BPS	1200m
4800BPS	800m		9600BPS	600m

When using a thin communication cable, or using this product in the electromagnetic interference strong environment, or the bus connected with more equipment, the maximum transmission range reduced, and distance lengthen.

C) connection methods and ultimate resistor

RS485 industrial bus standard and various devices are connected by daisy chain ways, two ends must be connected by 120 Ω resistor.

D) problems in practical application

Users often use star link way in actual life, at this time, this resistor must connect the farthest distance line (as shown on the two devices B and D), but because the connection mode does not conform to the requirements of the RS485 industry standard, so when equipment lines distance long, it is easy to produce signal reflections, and anti-jamming ability to drop, then result the reliability of the control signal interfere to drop. the reflection phenomenon is that the ball machine is not controlled or intermittent or operation can't stop. For this we advice use RS485 distributor. It can effectively convert star link to fit RS48.

5.using industrial standards stipulated connection mode, so as to avoid problems, improve communication reliability.

E) RS - 485 bus common fault solution

Failure	Possible reasons	Methods to solve them
The ball can self-inspection but cannot control	1. host ball machine address' baud rate does not match 2. +, - RS485 bus connect wrong 3. Loose connection 4 RS485 line, middle breakers	1. Change the host machine or the ball machine addresses, baud rate, make it consistent, 2. Adjust RS485 + / - polarity, 3. Tighten wiring, 4. Replace RS485.
Ball machine can control but not smooth	1 RS485 line contact undesirable 2 a RS485 line broken 3 host machine, ball machine' distance is long 4 the ball connect too much.	1 to meet RS485 line well 2. Replace RS485, 3. Add termination resistors, 4 add RS485 distributor.

4 pull code switch Settings

The ball machine' black hood interior has a ten pull code switch SW1, 1-8 used to set machine address, 9-10 for setting communication baud rate.

Ball control protocol automatic identification FACTORY, PELCO - P, if PELCO - D.

In the list, tag "1" stand pull code switch for ON state, Mark "0" for OFF.

a) Baud rate setting (SW1)

Baud rate	Switch NO. (SW1)			Baud rate	Switch NO. (SW1)		
	BIT	9	10		BIT	9	10
1200bps		0	0	4800bps		1	0
2400bps		0	1	9600bps		1	1

B)Ball machines address Settings (SW1)

In a system, decoder including intelligent high-speed ball video code and ordinary decoder, there are not repeat addresses between coding. The address above decoder and ball machine set as follows: list "1" stand for ON: "0" stand for OFF

address	Address switch (8numbers)		address	Address switch (8numbers)
coding	1 2 3 4 5 6 7 8		coding	1 2 3 4 5 6 7 8
1	1 0 0 0 0 0 0 0		33	1 0 0 0 0 1 0 0
2	0 1 0 0 0 0 0 0		34	0 1 0 0 0 1 0 0
3	1 1 0 0 0 0 0 0		35	1 1 0 0 0 1 0 0
4	0 0 1 0 0 0 0 0		36	0 0 1 0 0 1 0 0
5	1 0 1 0 0 0 0 0		37	1 0 1 0 0 1 0 0
6	0 1 1 0 0 0 0 0		38	0 1 1 0 0 1 0 0
7	1 1 1 0 0 0 0 0		39	1 1 1 0 0 1 0 0
8	0 0 0 1 0 0 0 0		40	0 0 0 1 0 1 0 0
9	1 0 0 1 0 0 0 0		41	1 0 0 1 0 1 0 0
10	0 1 0 1 0 0 0 0		42	0 1 0 1 0 1 0 0
11	1 1 0 1 0 0 0 0		43	1 1 0 1 0 1 0 0
12	0 0 1 1 0 0 0 0		44	0 0 1 1 0 1 0 0
13	1 0 1 1 0 0 0 0		45	1 0 1 1 0 1 0 0
14	0 1 1 1 0 0 0 0		46	0 1 1 1 0 1 0 0
15	1 1 1 1 0 0 0 0		47	1 1 1 1 0 1 0 0
16	0 0 0 0 1 0 0 0		48	0 0 0 0 1 1 0 0
17	1 0 0 0 1 0 0 0		49	1 0 0 0 1 1 0 0
18	0 1 0 0 1 0 0 0		50	0 1 0 0 1 1 0 0
19	1 1 0 0 1 0 0 0		51	1 1 0 0 1 1 0 0
20	0 0 1 0 1 0 0 0		52	0 0 1 0 1 1 0 0
21	1 0 1 0 1 0 0 0		53	1 0 1 0 1 1 0 0
22	0 1 1 0 1 0 0 0		54	0 1 1 0 1 1 0 0
23	1 1 1 0 1 0 0 0		55	1 1 1 0 1 1 0 0
24	0 0 0 1 1 0 0 0		56	0 0 0 1 1 1 0 0

25	1 0 0 1 1 0 0 0		57	1 0 0 1 1 1 0 0
26	0 1 0 1 1 0 0 0		58	0 1 0 1 1 1 0 0
27	1 1 0 1 1 0 0 0		59	1 1 0 1 1 1 0 0
28	0 0 1 1 1 0 0 0		60	0 0 1 1 1 1 0 0
29	1 0 1 1 1 0 0 0		61	1 0 1 1 1 1 0 0
30	0 1 1 1 1 0 0 0		62	0 1 1 1 1 1 0 0
31	1 1 1 1 1 0 0 0		63	1 1 1 1 1 1 0 0
32	0 0 0 0 0 1 0 0		64	0 0 0 0 0 0 1 0
address	Address switch (8numbers)		address	Address switch (8numbers)
coding	1 2 3 4 5 6 7 8		coding	1 2 3 4 5 6 7 8
65	1 0 0 0 0 0 1 0		97	1 0 0 0 0 1 1 0
66	0 1 0 0 0 0 1 0		98	0 1 0 0 0 1 1 0
67	1 1 0 0 0 0 1 0		99	1 1 0 0 0 1 1 0
68	0 0 1 0 0 0 1 0		100	0 0 1 0 0 1 1 0
69	1 0 1 0 0 0 1 0		101	1 0 1 0 0 1 1 0
70	0 1 1 0 0 0 1 0		102	0 1 1 0 0 1 1 0
71	1 1 1 0 0 0 1 0		103	1 1 1 0 0 1 1 0
72	0 0 0 1 0 0 1 0		104	0 0 0 1 0 1 1 0
73	1 0 0 1 0 0 1 0		105	1 0 0 1 0 1 1 0
74	0 1 0 1 0 0 1 0		106	0 1 0 1 0 1 1 0
75	1 1 0 1 0 0 1 0		107	1 1 0 1 0 1 1 0
76	0 0 1 1 0 0 1 0		108	0 0 1 1 0 1 1 0
77	1 0 1 1 0 0 1 0		109	1 0 1 1 0 1 1 0
78	0 1 1 1 0 0 1 0		110	0 1 1 1 0 1 1 0
79	1 1 1 1 0 0 1 0		111	1 1 1 1 0 1 1 0
80	0 0 0 0 1 0 1 0		112	0 0 0 0 1 1 1 0
81	1 0 0 0 1 0 1 0		113	1 0 0 0 1 1 1 0
82	0 1 0 0 1 0 1 0		114	0 1 0 0 1 1 1 0
83	1 1 0 0 1 0 1 0		115	1 1 0 0 1 1 1 0
84	0 0 1 0 1 0 1 0		116	0 0 1 0 1 1 1 0
85	1 0 1 0 1 0 1 0		117	1 0 1 0 1 1 1 0
86	0 1 1 0 1 0 1 0		118	0 1 1 0 1 1 1 0
87	1 1 1 0 1 0 1 0		119	1 1 1 0 1 1 1 0
88	0 0 0 1 1 0 1 0		120	0 0 0 1 1 1 1 0
89	1 0 0 1 1 0 1 0		121	1 0 0 1 1 1 1 0
90	0 1 0 1 1 0 1 0		122	0 1 0 1 1 1 1 0
91	1 1 0 1 1 0 1 0		123	1 1 0 1 1 1 1 0
92	0 0 1 1 1 0 1 0		124	0 0 1 1 1 1 1 0
93	1 0 1 1 1 0 1 0		125	1 0 1 1 1 1 1 0
94	0 1 1 1 1 0 1 0		126	0 1 1 1 1 1 1 0
95	1 1 1 1 1 0 1 0		127	1 1 1 1 1 1 1 0
96	0 0 0 0 0 1 1 0		128	0 0 0 0 0 0 0 1
address	Address switch (8numbers)		address	Address switch (8numbers)

coding	1 2 3 4 5 6 7 8		coding	1 2 3 4 5 6 7 8
129	1 0 0 0 0 0 0 1		161	1 0 0 0 0 1 0 1
130	0 1 0 0 0 0 0 1		162	0 1 0 0 0 1 0 1
131	1 1 0 0 0 0 0 1		163	1 1 0 0 0 1 0 1
132	0 0 1 0 0 0 0 1		164	0 0 1 0 0 1 0 1
133	1 0 1 0 0 0 0 1		165	1 0 1 0 0 1 0 1
134	0 1 1 0 0 0 0 1		166	0 1 1 0 0 1 0 1
135	1 1 1 0 0 0 0 1		167	1 1 1 0 0 1 0 1
136	0 0 0 1 0 0 0 1		168	0 0 0 1 0 1 0 1
137	1 0 0 1 0 0 0 1		169	1 0 0 1 0 1 0 1
138	0 1 0 1 0 0 0 1		170	0 1 0 1 0 1 0 1
139	1 1 0 1 0 0 0 1		171	1 1 0 1 0 1 0 1
140	0 0 1 1 0 0 0 1		172	0 0 1 1 0 1 0 1
141	1 0 1 1 0 0 0 1		173	1 0 1 1 0 1 0 1
142	0 1 1 1 0 0 0 1		174	0 1 1 1 0 1 0 1
143	1 1 1 1 0 0 0 1		175	1 1 1 1 0 1 0 1
144	0 0 0 0 1 0 0 1		176	0 0 0 0 1 1 0 1
145	1 0 0 0 1 0 0 1		177	1 0 0 0 1 1 0 1
146	0 1 0 0 1 0 0 1		178	0 1 0 0 1 1 0 1
147	1 1 0 0 1 0 0 1		179	1 1 0 0 1 1 0 1
148	0 0 1 0 1 0 0 1		180	0 0 1 0 1 1 0 1
149	1 0 1 0 1 0 0 1		181	1 0 1 0 1 1 0 1
150	0 1 1 0 1 0 0 1		182	0 1 1 0 1 1 0 1
151	1 1 1 0 1 0 0 1		183	1 1 1 0 1 1 0 1
152	0 0 0 1 1 0 0 1		184	0 0 0 1 1 1 0 1
153	1 0 0 1 1 0 0 1		185	1 0 0 1 1 1 0 1
154	0 1 0 1 1 0 0 1		186	0 1 0 1 1 1 0 1
155	1 1 0 1 1 0 0 1		187	1 1 0 1 1 1 0 1
156	0 0 1 1 1 0 0 1		188	0 0 1 1 1 1 0 1
157	1 0 1 1 1 0 0 1		189	1 0 1 1 1 1 0 1
158	0 1 1 1 1 0 0 1		190	0 1 1 1 1 1 0 1
159	1 1 1 1 1 0 0 1		191	1 1 1 1 1 1 0 1
160	0 0 0 0 1 0 1		192	0 0 0 0 0 1 1
address	Address switch (8numbers)		address	Address switch (8numbers)
coding	1 2 3 4 5 6 7 8		coding	1 2 3 4 5 6 7 8
193	1 0 0 0 0 1 1		225	1 0 0 0 0 1 1
194	0 1 0 0 0 1 1		226	0 1 0 0 0 1 1
195	1 1 0 0 0 1 1		227	1 1 0 0 0 1 1
196	0 0 1 0 0 1 1		228	0 0 1 0 0 1 1
197	1 0 1 0 0 1 1		229	1 0 1 0 0 1 1
198	0 1 1 0 0 1 1		230	0 1 1 0 0 1 1
199	1 1 1 0 0 1 1		231	1 1 1 0 0 1 1
200	0 0 0 1 0 0 1 1		232	0 0 0 1 0 1 1

201	1 0 0 1 0 0 1 1		233	1 0 0 1 0 1 1 1
202	0 1 0 1 0 0 1 1		234	0 1 0 1 0 1 1 1
203	1 1 0 1 0 0 1 1		235	1 1 0 1 0 1 1 1
204	0 0 1 1 0 0 1 1		236	0 0 1 1 0 1 1 1
205	1 0 1 1 0 0 1 1		237	1 0 1 1 0 1 1 1
206	0 1 1 1 0 0 1 1		238	0 1 1 1 0 1 1 1
207	1 1 1 1 0 0 1 1		239	1 1 1 1 0 1 1 1
208	0 0 0 0 1 0 1 1		240	0 0 0 0 1 1 1 1
209	1 0 0 0 1 0 1 1		241	1 0 0 0 1 1 1 1
210	0 1 0 0 1 0 1 1		242	0 1 0 0 1 1 1 1
211	1 1 0 0 1 0 1 1		243	1 1 0 0 1 1 1 1
212	0 0 1 0 1 0 1 1		244	0 0 1 0 1 1 1 1
213	1 0 1 0 1 0 1 1		245	1 0 1 0 1 1 1 1
214	0 1 1 0 1 0 1 1		246	0 1 1 0 1 1 1 1
215	1 1 1 0 1 0 1 1		247	1 1 1 0 1 1 1 1
216	0 0 0 1 1 0 1 1		248	0 0 0 1 1 1 1 1
217	1 0 0 1 1 0 1 1		249	1 0 0 1 1 1 1 1
218	0 1 0 1 1 0 1 1		250	0 1 0 1 1 1 1 1
219	1 1 0 1 1 0 1 1		251	1 1 0 1 1 1 1 1
220	0 0 1 1 1 0 1 1		252	0 0 1 1 1 1 1 1
221	1 0 1 1 1 0 1 1		253	1 0 1 1 1 1 1 1
222	0 1 1 1 1 0 1 1		254	0 1 1 1 1 1 1 1
223	1 1 1 1 1 0 1 1		255	1 1 1 1 1 1 1 1
224	0 0 0 0 0 1 1 1			